Solar Aid Controller III (SACIII)

Please note that the SACIII contains two (2) power input terminals, **TB1-1a** and **TB1-1b**. 12VDC power to the SACIII, usually distributed from the Solar Distribution Box (SDB) at power feeder #9 (C/B #9), must be applied to only one of these inputs, depending on the lighthouse configuration (the unused terminal must remain disconnected). After reviewing the information below, please select and use the power input terminal that corresponds to your lighthouse configuration.

CAUTION: ***Never* apply power to both TB1-1a *and* TB1-1b at the same time under any circumstances**.

TB1-1a. Use power input terminal TB1-1a if your main light is either: (1) under 50 watts *and* uses a flasher for voltage regulation and lampchanger control, or (2) any LED lantern (e.g., VLB-44, LED 350). Also, use terminal TB1-1a for all 12VDC sound signal applications. When the SACIII is powered at TB1-1a an internal active voltage regulator circuit is called upon to provide protection and stability to SACIII's internal circuitry. Lampchanging function is disabled. By contrast, the SACII does not contain an internal active voltage regulator.

Please note that if the main light is an LED lantern, the rotation bypass jumper wire between J(-) and J(+) (TB1-2 and TB1-3) must be in place since all LED lanterns are flashed, not rotated. Also, when powering the SACIII at TB1-1a, the lampchanging capability, usually available at terminal TB2-3, is intentionally disabled since the desired system operation here is for the main light's flasher to perform this function.

TB1-1b. Use power input terminal TB1-1b if your main light lamp is 50 watts or higher and uses no flasher (in these cases, the SACIII operates the CG-6PHW lampchanger). Powering the SACIII at TB1-1b bypasses the internal active voltage regulator for a simpler passive zener regulator network to protect the circuit. Lampchanging function is enabled. Powering up a SACIII at TB1-1b is functionally identical to powering up a SACII at TB1-1. This point may be of especial interest to those wishing to replace an old SACII with a SACIII (see discussion on Backward Compatibility below for more info).

TB2-4 and TB2-5. Also, compared to a SACII, the SACIII contains two additional positions along terminal strip TB2: terminals TB2-4 and TB2-5. These terminals provide a simple, non-polarized, dry contact closure to operate an emergency backup signal under emergency conditions. For instance, to enable and then control the on/off operation of an emergency light during main light failure, connect these two terminals to the two "S" sunswitch terminals in the emergency light's flasher. Likewise, to enable and control an emergency sound signal using this method, power the emergency sound signal directly from SDB's (+) and (-) load terminal #8 and then run a new pair of wires from SACIII TB2-4 and TB2-5 to the emergency sound signal's ***timer board*** at terminals **2** and **3**. See page 2 for more detailed information and diagrams. *CAUTION: Never attempt to switch load currents with these terminals: contacts are rated at 1A max!*

Backward Compatibility. The SACIII is backward compatible. What this means is that a bad SACII can be replaced directly with a new SACIII using the same terminals, keeping in mind that from an operating standpoint the SACIII's terminal TB1-1b is identical to SACII's TB1-1 and that SACIII's terminals TB2-4 and TB2-5 can simply be ignored. However, using the guidelines above and on page 2 regarding how/when to use TB1-1a vice TB1-1b and the new emergency signal control terminal pair, TB2-4 & TB2-5, will result in a more reliable aid to navigation if/where implemented.

The two diagrams presented below demonstrate how the new emergency signal control terminals of the SACIII (**TB2-4** and **TB2-5**) are wired into the lighthouse system for emergency signal control, should you choose to use them. Modifications to your existing emergency signal control wiring may be necessary.

In the case of the emergency **light**, first remove the resistor installed across the flasher's two "S" sunswitch terminals, if any (this is usually a 6.8K ohm resistor). Also, remove the control wire connected between the old SACII terminal TB1-10 and the flasher. Then run a new pair of #18 AWG wires from SACIII L1 terminals TB2-4 and TB2-5 to the emergency light, as shown below.

In the case of the emergency **sound**, first remove (or bypass) the Solid State Relay (SSR) in the SDB along with associated wiring and then permanently connect 12VDC power to the emergency sound signal from SDB's appropriate power feeder branch circuit (usually C/B #8). Then run a new pair of #18 AWG wires from SACIII S1 terminals TB2-4 and TB2-5 to the emergency sound, as shown below.